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Success Story

F-16 TEST AIRCRAFT COMPLETES LONG DISTINGUISHED CAREER



F-16 tail number 75-0750 flew its first mission in April 1978 and participated in 10 flight test programs since that time. For the past two decades, the aircraft was the technology demonstrator for the Air Vehicles Directorate's Advanced Fighter Technology Integration (AFTI) program. The aircraft helped directorate engineers transition digital flight controls, a night vision system (night vision goggles and compatible cockpit lighting), improved takeoff and landing gear control, and a voice annunciation system.



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Accomplishment

Aircraft 750 flew its final flight in January 2001 from Ft. Worth, Texas to Wright-Patterson Air Force Base in Dayton, Ohio, for induction into the Air Force Museum. The aircraft, having flown more than 756 flights, accumulated 1446 flight hours under 23-plus test pilots from Lockheed Martin, the US Air Force, the National Aeronautical and Space Administration, the US Marine Corps, the Swedish Air Force, and the Department of Defense Joint Strike Fighter program.

Background

The AFTI/F-16 was an excellent test platform due to its modern systems, relative ease of incorporating advanced technologies, and low cost of operation and maintenance. Lockheed Martin originally built aircraft 750 as an F-16A, the sixth “A” model and seventh of eight aircraft in the F-16 Full-Scale Development program. The aircraft’s last mission was the very successful Joint Strike Fighter Integrated Subsystems Technology demonstration in Fort Worth during October-November 2000.

The manufacturer modified the AFTI/F-16 with an all-electric flight control system with electrohydrostatic actuators and a 270-volt direct current switched reluctance electric power system. The AFTI/F-16 was the first aircraft to fly with an all-electric flight control system. These technologies reduce weight, improve reliability and maintainability, increase survivability, and trim costs compared to traditional hydraulic actuator systems.

Other AFTI/F-16 technologies transitioning into F-16 production include multifunction displays, dual multiplex bus avionics architecture, wide-angle heads-up display, up-front controls, single-switch mission reconfiguration, dorsal avionics compartment, digital data link, digital terrain system, automatic terrain following, and system-wide integrity management. Prospective items for the F-16 in the near term include helmet-mounted cueing of weapons and sensors, digital color map display, internalized forward looking infrared (FLIR) targeting system, and in-flight route planning.

Advanced technologies demonstrated with promise for the next generation of fighters or for future incorporation on current fighters include voice interaction, auto ground collision avoidance, head-steered FLIR imaging, covert radar altimeter, electric flight control actuation, and cooperative engagement capability (separated target sensor and shooter).

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTT, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (01-VA-02)